



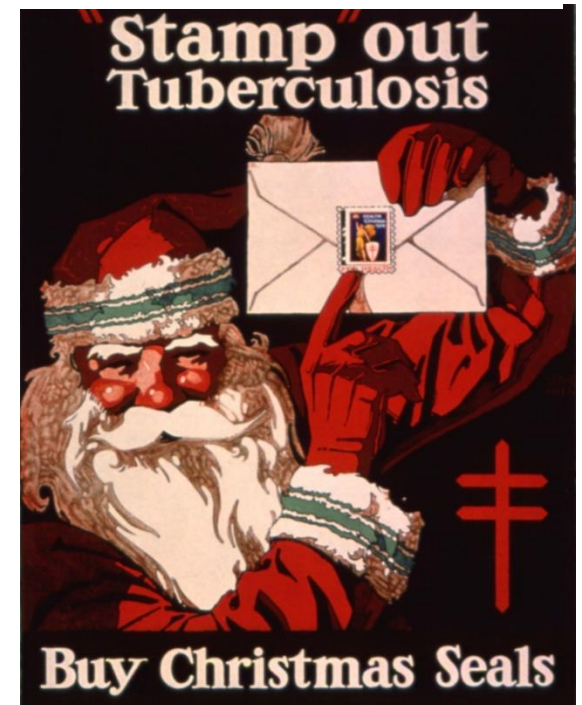
BIOFUELS & PUBLIC HEALTH (IMPROVING THE AIR WE BREATHE)

ANGELA TIN
EMERGING ISSUES FORUM
APRIL 2016



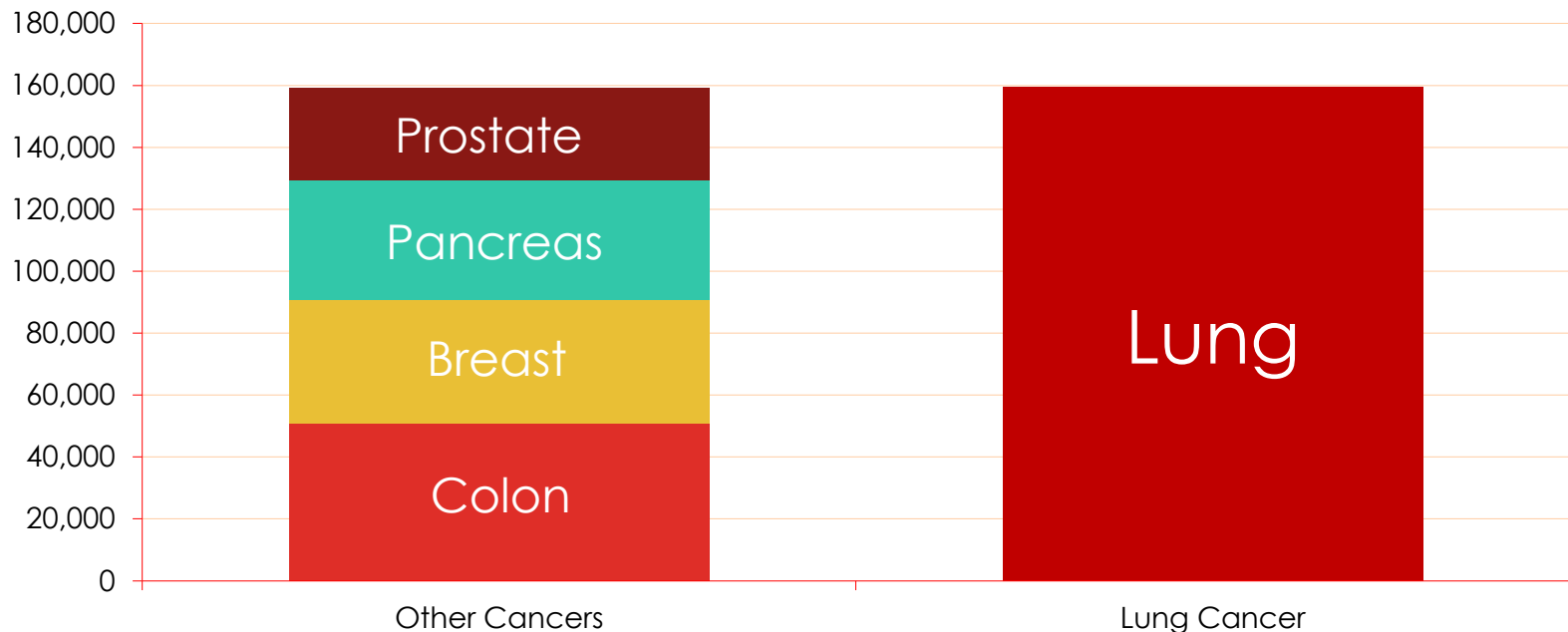
HISTORY

- 1904 (oldest voluntary health organization)
 - ✓ National Tuberculosis Association
 - ✓ Christmas Seals
- 1906 - Lorraine Cross
 - ✓ Crusaders
 - ✓ French Cross of Lorraine
 - ✓ Crusade against the White Plague



LUNG CANCER IS THE DEADLIEST CANCER

Estimated Cancer Deaths by Site, 2013



Source: American Cancer Society. Cancer Facts & Figures 2013

MOST LUNG CANCER IS CAUSED BY SMOKING (WHILE THE NUMBER OF SMOKERS ARE DECREASING, THE INCIDENCE OF LUNG CANCER IS INCREASING)

EARLY DETECTION FOR LUNG CANCER RESEARCH GRANTS EDUCATION & ADVOCACY PREVENTION PROGRAMS

Targeting Research:

- Early detection methods
- Screening tests
- Treatment methods
- A clear foundation for future development.
- Builds on ongoing research on treating and finding a cure

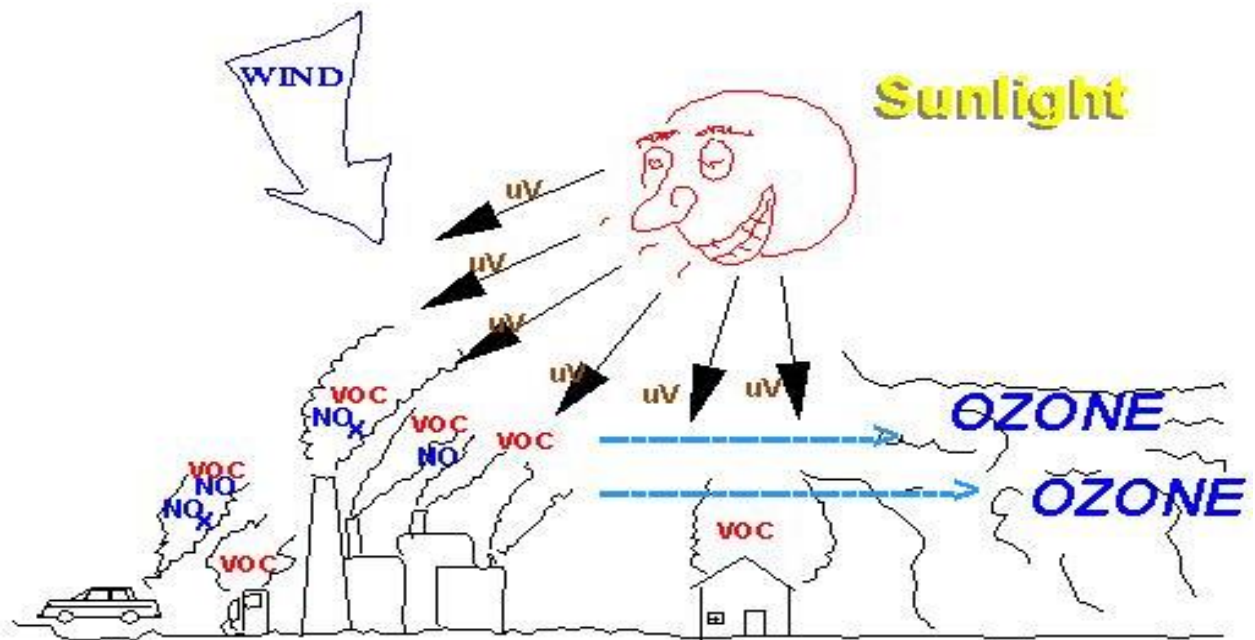




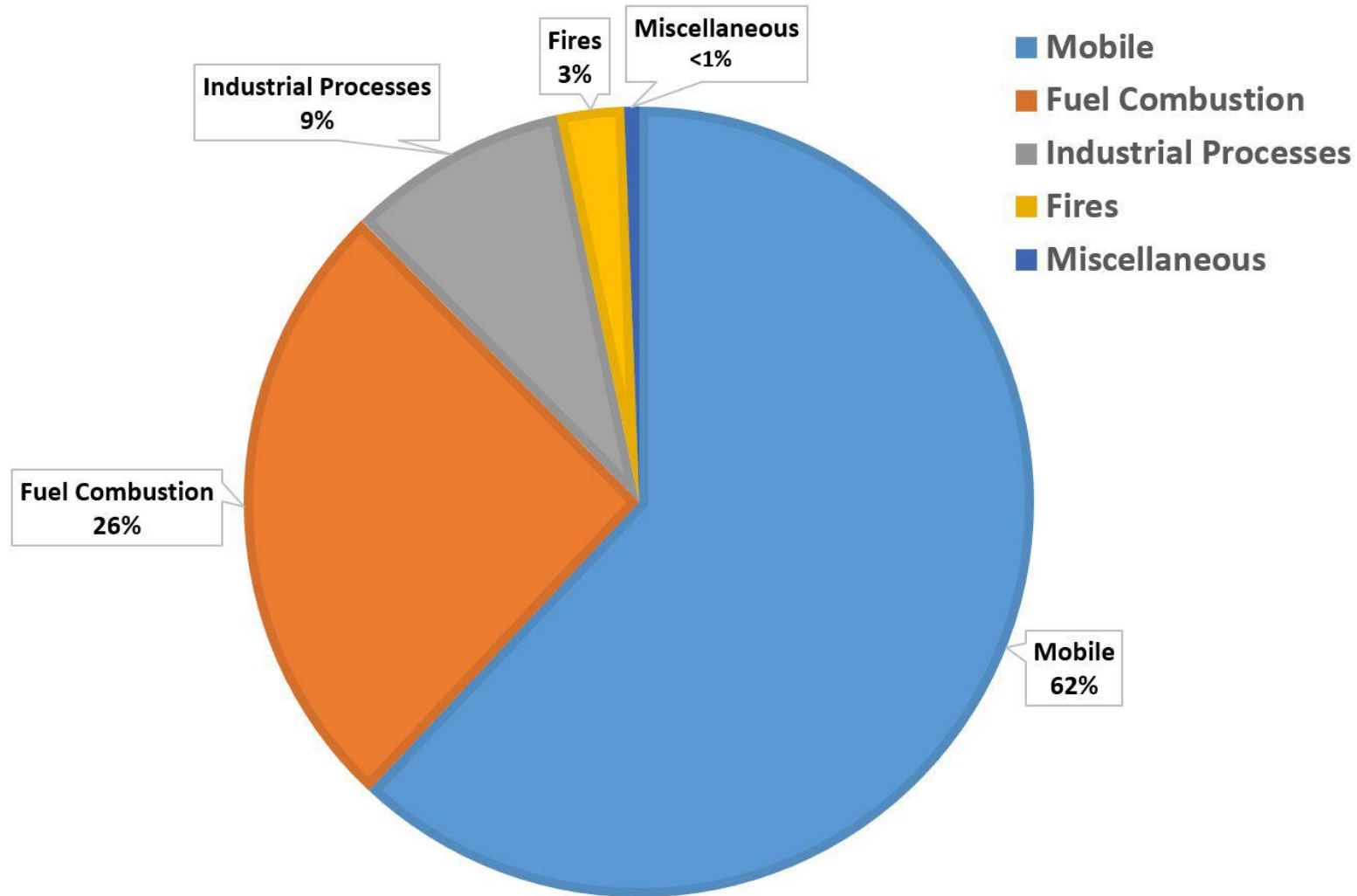
WHERE DOES OZONE COME FROM?

Primordial Ozone Soup

HOW VOCs AND NO_x FORM GROUNDLEVEL OZONE



U.S. NOX EMISSIONS BY SECTOR



PARTICULATE MATTER

- PM 10 – PM 2.5 micron
- Natural & industrial
- Health effects
 - ✓Bronchioles 1-5 m
 - ✓Lung & heart
- Environmental effects
 - ✓Haze & smog
 - ✓Water acidity
 - ✓Damage to crops
 - ✓Effects on ecosystems

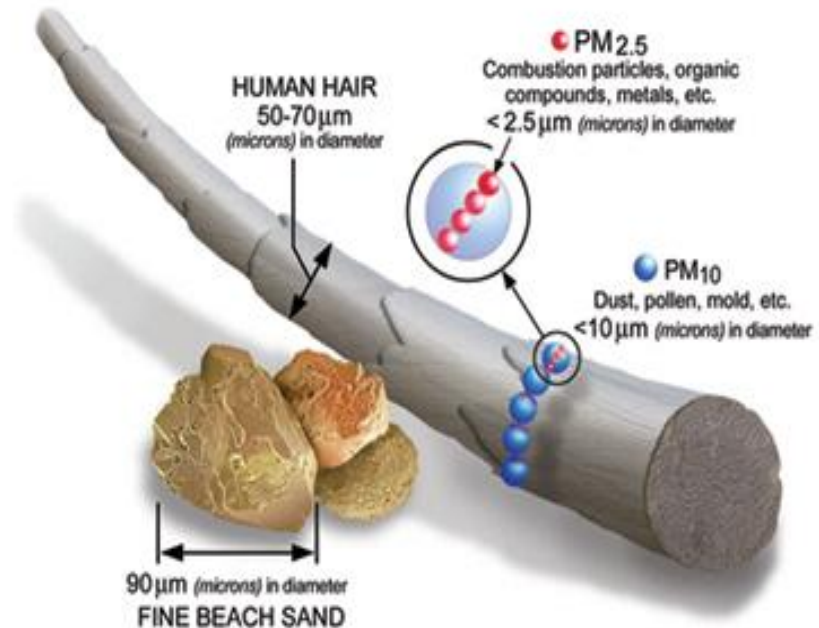
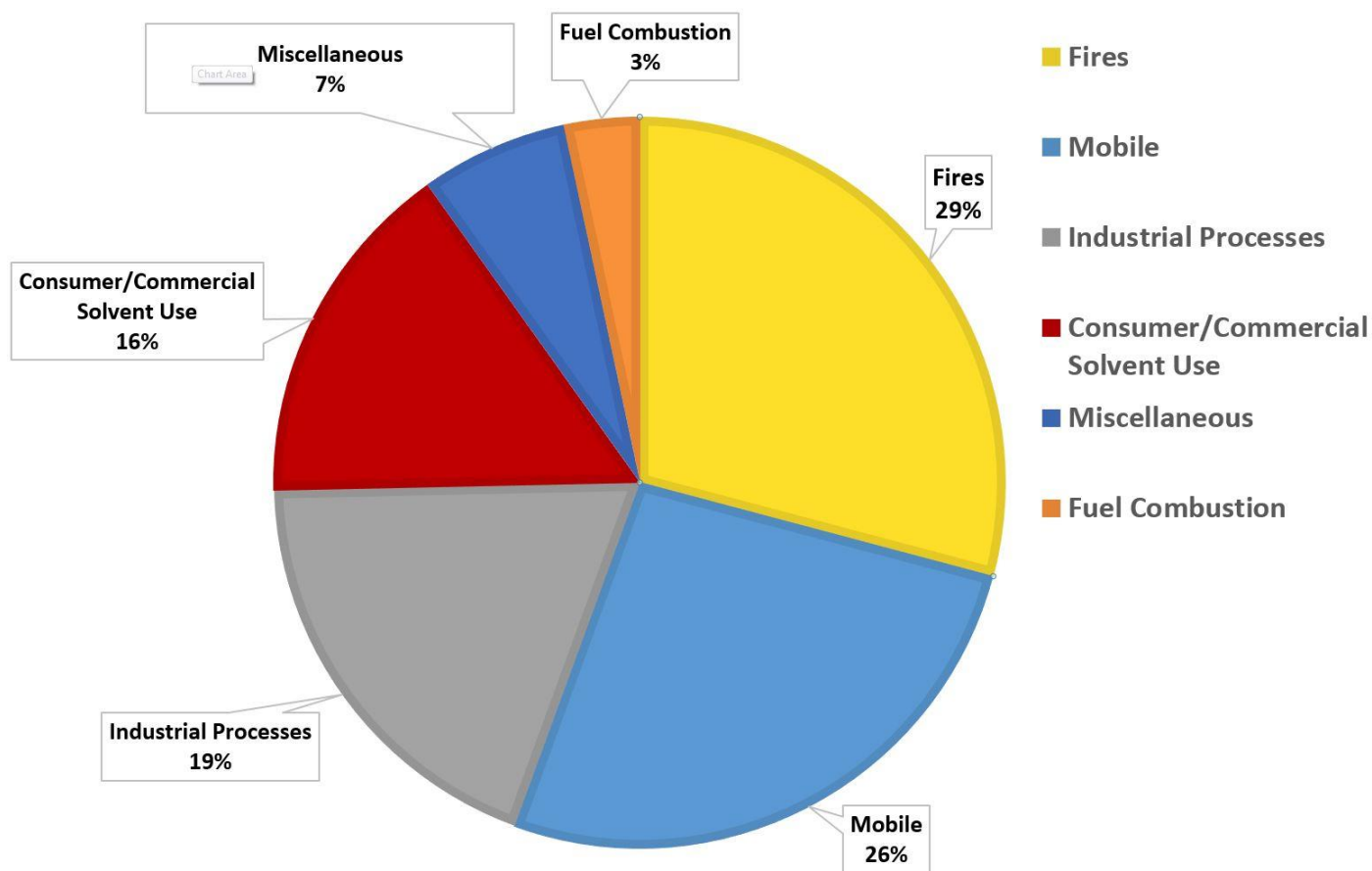


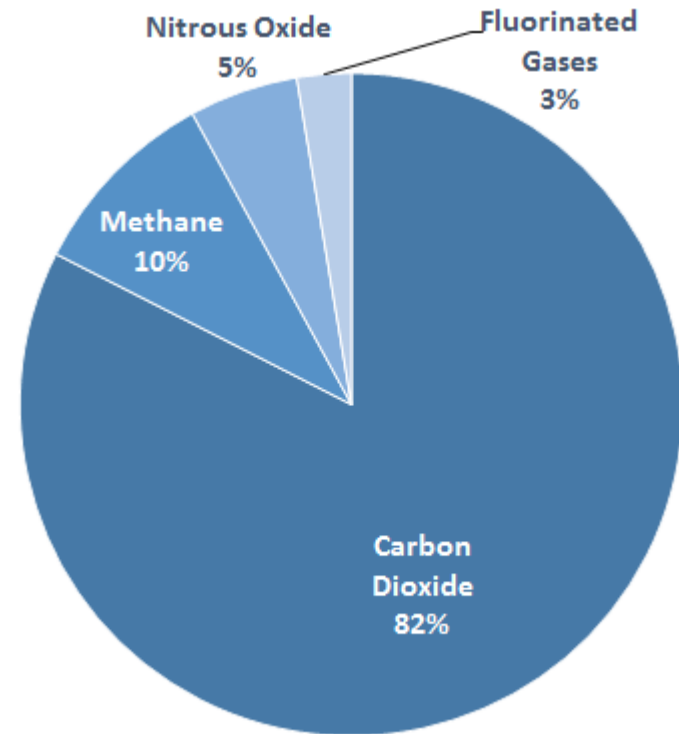
Image courtesy of the U.S. EPA

U.S. HYDROCARBONS EMISSIONS BY SECTOR

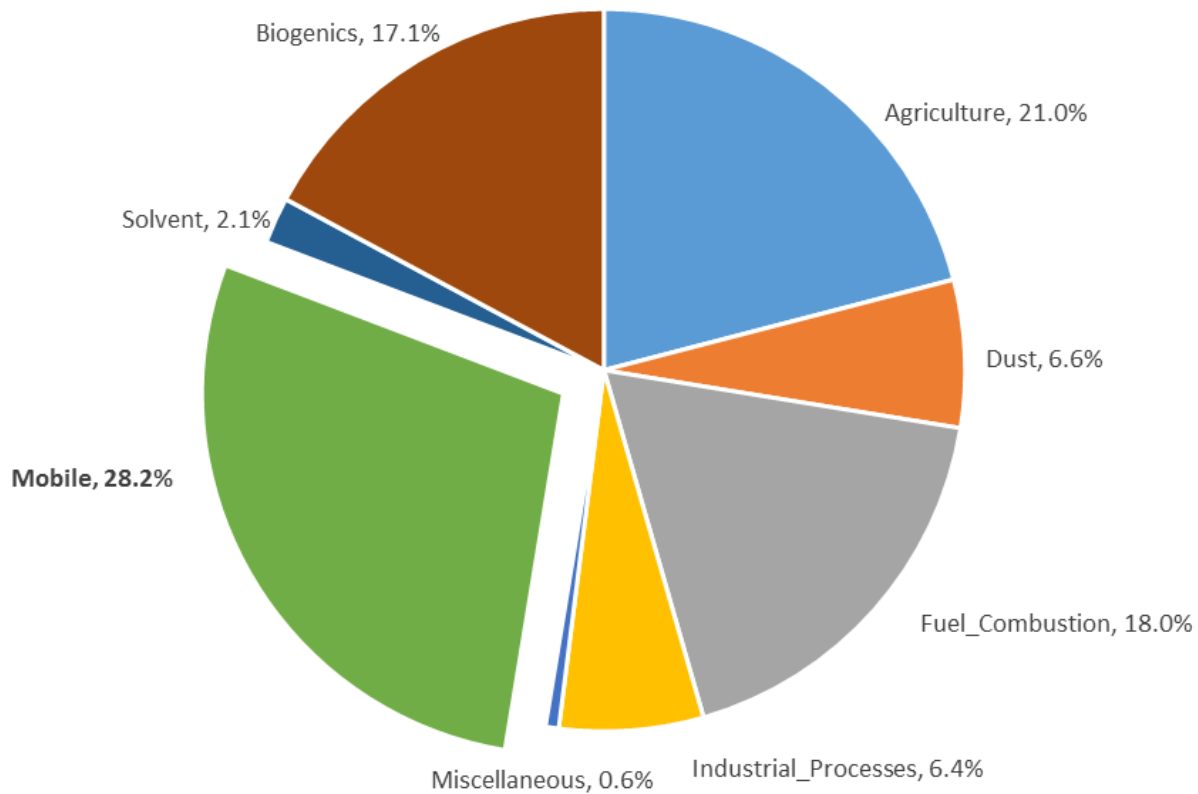


CLIMATE CHANGE & GREENHOUSE GASES

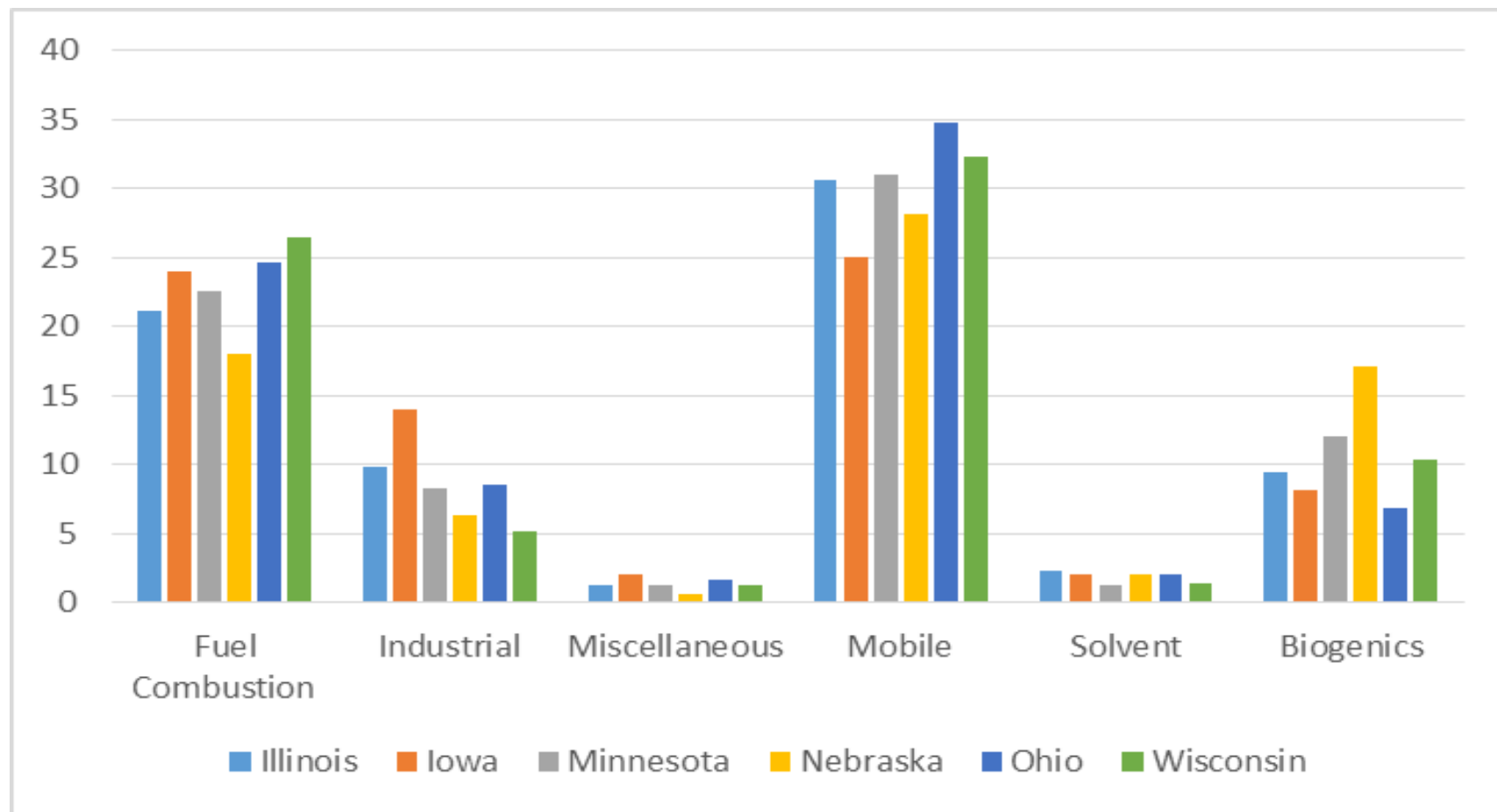
- Carbon dioxide –burning of fossil fuels (coal, natural gas, and petroleum fuels)
- Result of chemical reactions (mfg of cement)
- Usually removed by plants as a part of biological carbon cycle (except when there is an excess)



2013 NEBRASKA AIRSHED EMISSIONS



AIR QUALITY IN MIDWEST REGION





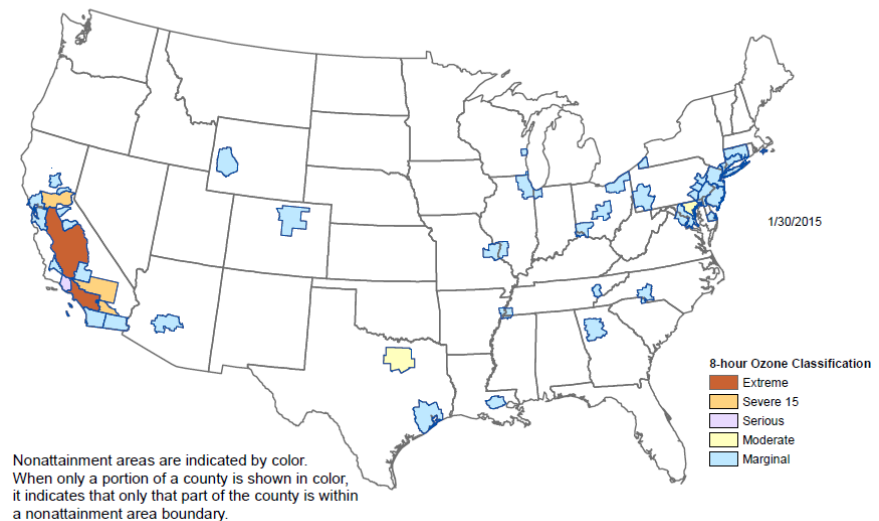
CLEAN AIR ACT (1970)

- Created EPA
- EPA required to establish air quality standards (NAAQS)
 - ✓ 6 Criteria pollutants
(ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, particulate matter, and lead)
 - ✓ Toxic air pollutants (carcinogens)
- Time lines to comply (which is now)
- Will tighten standards (which is now)
- Will add more pollutants later (which is now)

What is a “nonattainment” (NA) area?

- ❖ An area that does not meet (Or upwind from an area that does not meet) the air quality standard for that pollutant
- ❖ 6 pollutants
- 6 reasons & more
- ❖ 118 non-attainment areas in U.S.

8-Hour Ozone Nonattainment Areas (2008 Standard)



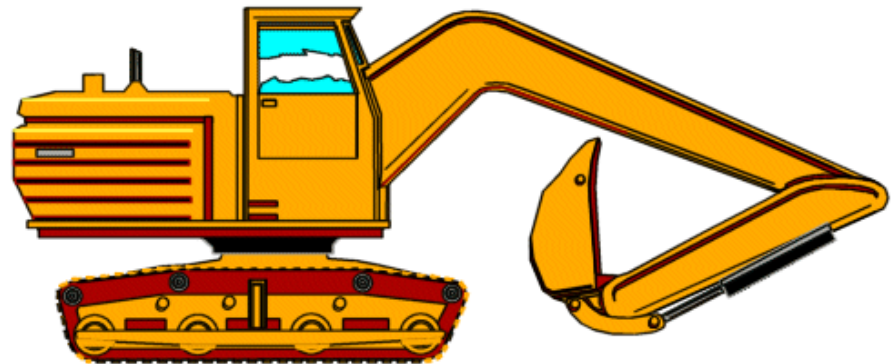
THE CLEAN AIR ACT PREVENTS

	2010	2020
Adult Mortality - particles	160,000	230,000
Infant Mortality - particles	230	280
Mortality - ozone	4,300	7,100
Chronic Bronchitis	54,000	75,000
Heart Disease – Acute Myocardial Infarction	130,000	200,000
Asthma Exacerbation	1,700,000	2,400,000
Emergency Room Visits	86,000	120,000
School Loss Days	3,200,000	5,400,000
Lost Work Days	13,000,000	17,000,000

WHO MUST COMPLY?



- Mobile Sources
 - ✓ On road
 - ✓ Off road
 - ✓ Planes
 - ✓ Trains
 - ✓ Small engines
- Chemical Products

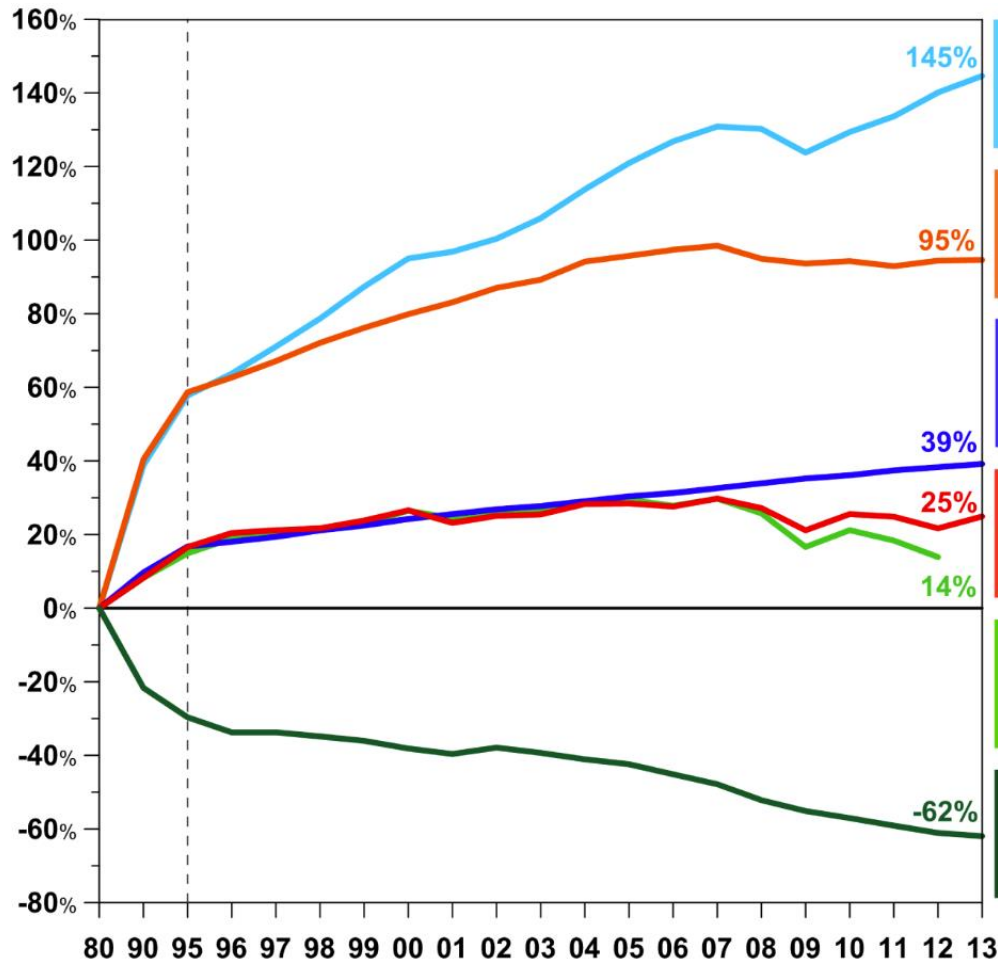


NOT HOMES OR PEOPLE (DIRECTLY)!

No federal laws mandating:
Recycling, reuse, energy, chemical, vehicle choice or fuel usage



CLEAN AIR ACT PROGRESS



Gross Domestic Product



Vehicle Miles Traveled



Population



Energy Consumption

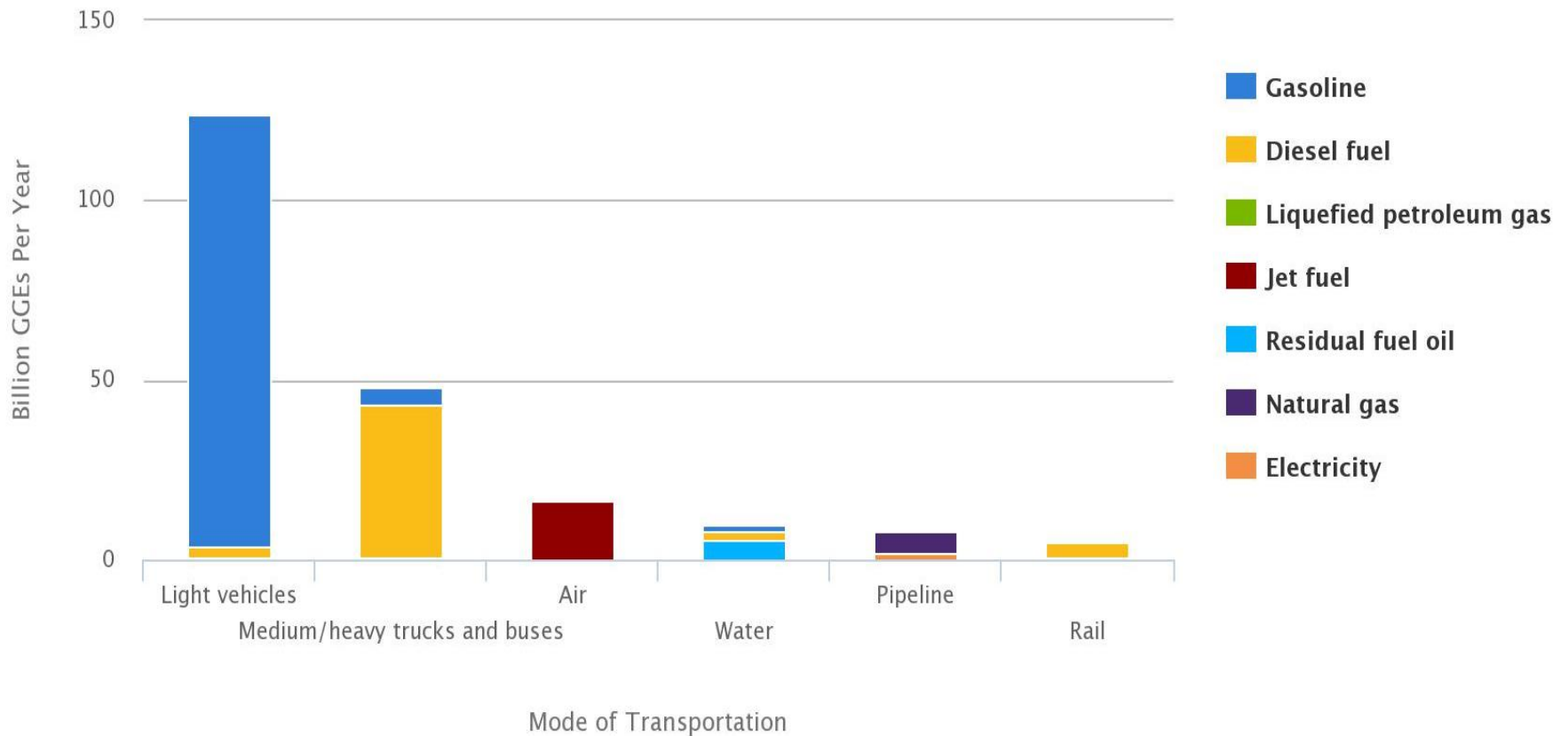


CO₂ Emissions



Aggregate Emissions
(Six Common Pollutants)

TRANSPORTATION ENERGY USE BY MODE AND FUEL TYPE



MOBILE SOURCE EMISSIONS

- Exhaust emissions
- Evaporative emissions
(hot days > cold days)
- Trip emissions
(average trip = 7 miles X 7 times day)
 - ✓ Variable emissions - speed
 - ✓ Variable emissions - age
- Refueling emissions

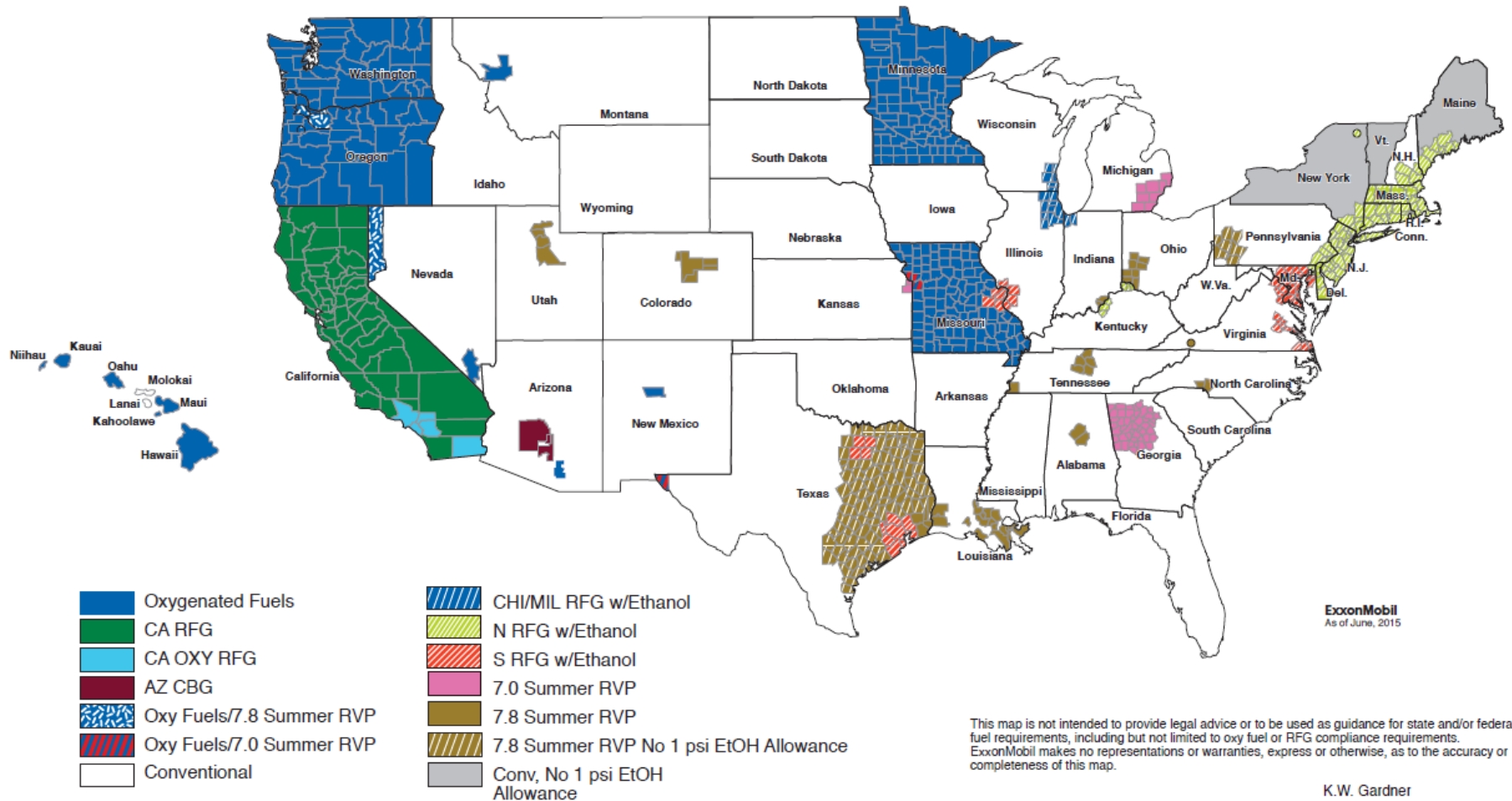


MOBILE SOURCE CLEAN AIR RULES

- ❖ Clean Cars and Passenger Trucks –Tier 3
- ❖ Clean Heavy-Duty Trucks and Buses
- ❖ Mobile Source Air Toxics Rule
- ❖ Clean Non-road Diesel Engines and Equipment
- ❖ Locomotive and Marine Diesel Standards
- ❖ Ocean-going Vessels
- ❖ Small Gasoline and Recreational Marine Standards
- ❖ Ultra-low Sulfur Fuel Requirements
- ❖ Renewable Fuel Standards



U.S. Gasoline Requirements



Nebraska Data

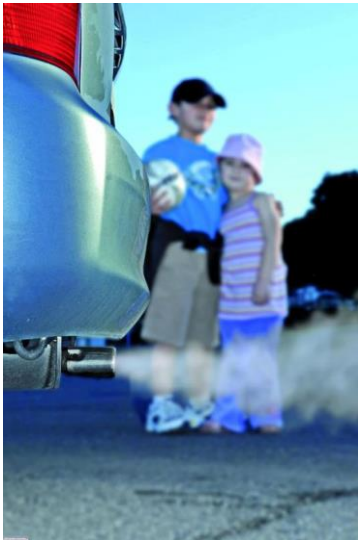
Population = 1,855,525

Pediatric asthma = 32,091

Adult asthma = 103,000

COPD = 74,128

Lung cancer = 1,111



Carbon Monoxide:

72% from Mobile Sources

Nitrogen Oxides:

61% from Mobile Sources

17% from Fuel Combustion

Sulfur Dioxide:

96% from Fuel Combustion

Lead:

51% from Mobile Sources

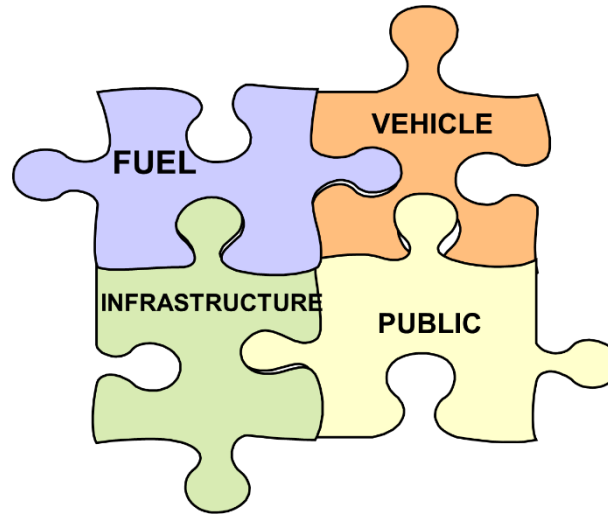
36% from Industrial Processes

CLEAN AIR CHOICE™

- ❖ Ethanol Fuel
- ❖ Biodiesel
- ❖ Clean Diesel
- ❖ Electric Vehicles

PROGRAM EFFORTS

1. Interactive Event Display
2. IL E85 Coupon Program
3. FFV Dealership Coupon
4. Online Coupon Program
5. Enterprise Coupon Program
6. GIS Station Mapping
7. Infrastructure Grants
8. Environmental & Health Benefits



Illinois
Indiana
Iowa
Minnesota
Nebraska
Ohio
Wisconsin



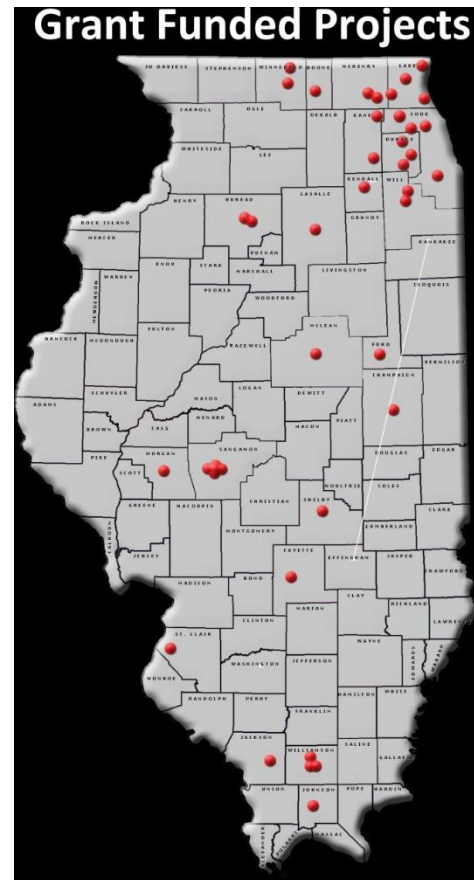
INFRASTRUCTURE GRANT PROGRAM

**Illinois E85
Station Grants**

**Funding
available for:**

**New Station Construction
&
Existing Station Conversion**

**Ask Us For
Application Details**



2016 USDA BIOFUELS INFRASTRUCTURE GRANTS

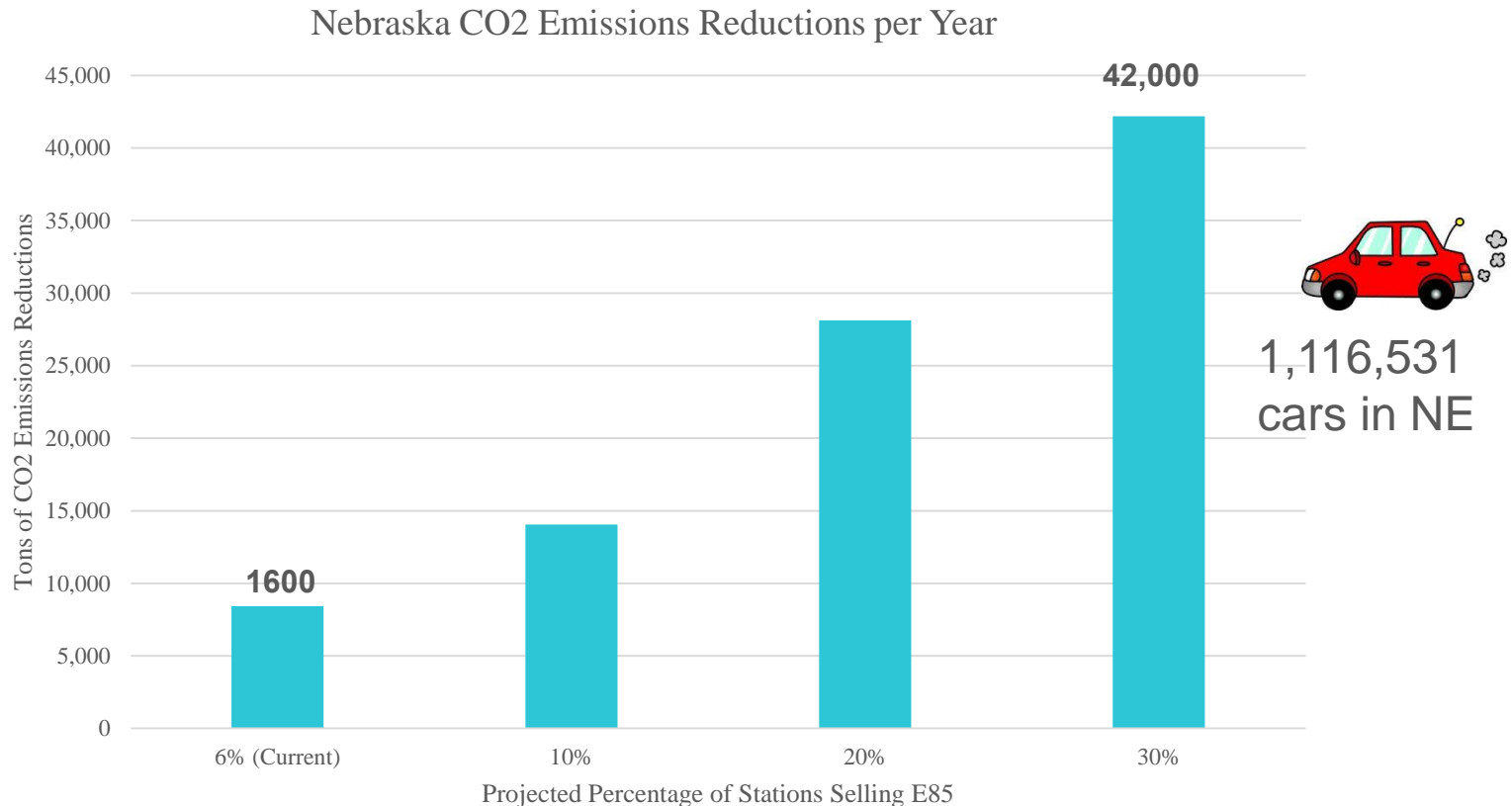
STATE	DOLLAR AMT	STATIONS	PUMPS	TANKS
Illinois	12 M	65	428	54
Indiana	895 K	110	110	0
Iowa	5 M	100	17	25
Kansas	1.3 M	170	174	0
Michigan	3 M	16	89	20
Minnesota	8 M	165	620	92
Missouri	2.8 M	166	171	41
Nebraska	2.3 M	32	80	20
North Dakota / South Dakota	3.7 M	46	164	12
Ohio	3.4 M	41	148	4
Wisconsin	3.7 M	100	120	100

REFORMULATED GAS SUBSTANTIALLY REDUCES HARMFUL GASOLINE EMISSIONS

The Health Benefits of Ethanol: C. Boyden Gray

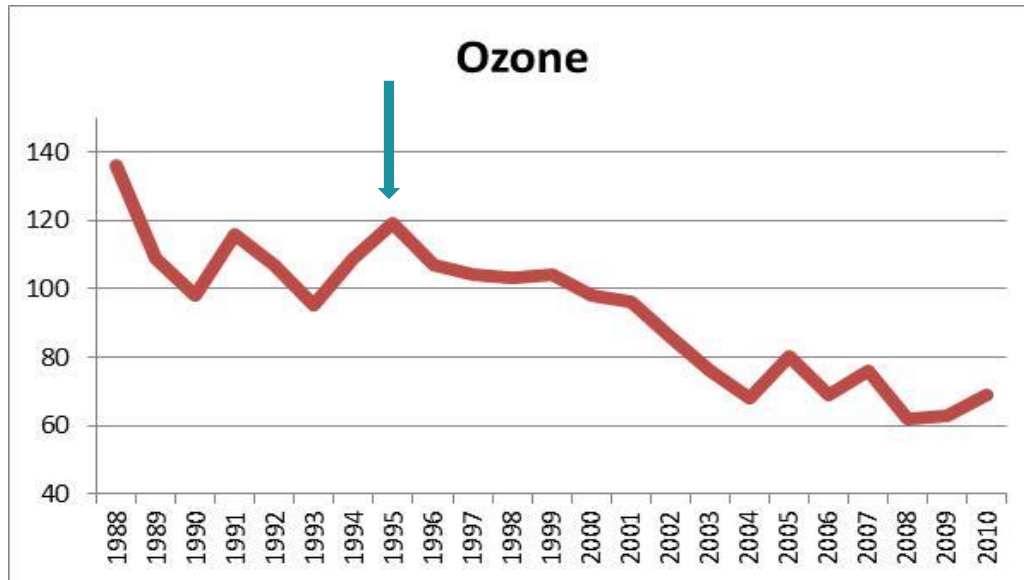
Air Toxics	-28%
Volatile Organic Compounds	-17%
Nitrogen Oxides	-3%
Carbon Monoxide	-13%
Sulfur Oxides	-11%
Carbon Dioxide (Green House)	-4% (-30%)
Particulate Matter	-9% (-50% for fine PM)
Reduced Cancer Risk	-20 – 30%

NEBRASKA CO2 EMISSION REDUCTIONS

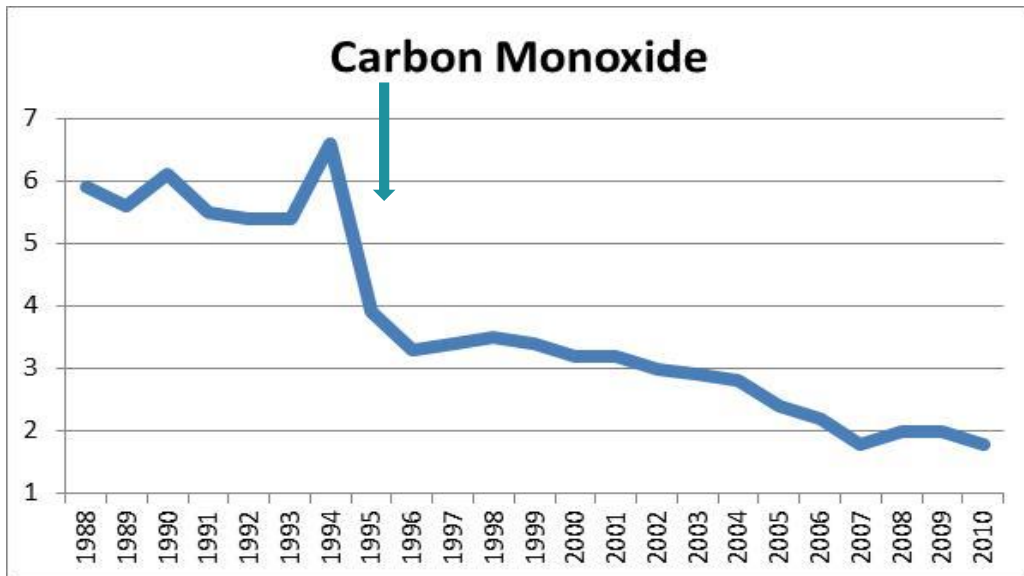


- **83** stations selling E85 (**6%** of the total active stations in Nebraska)\
- **8,419** tons of CO2 emissions reductions per year (less **1,600** cars off the road each year)
- If **30%** of stations sell E85, emissions reductions increase to over **42,000** tons per year.

Reformulated Gas in 1995



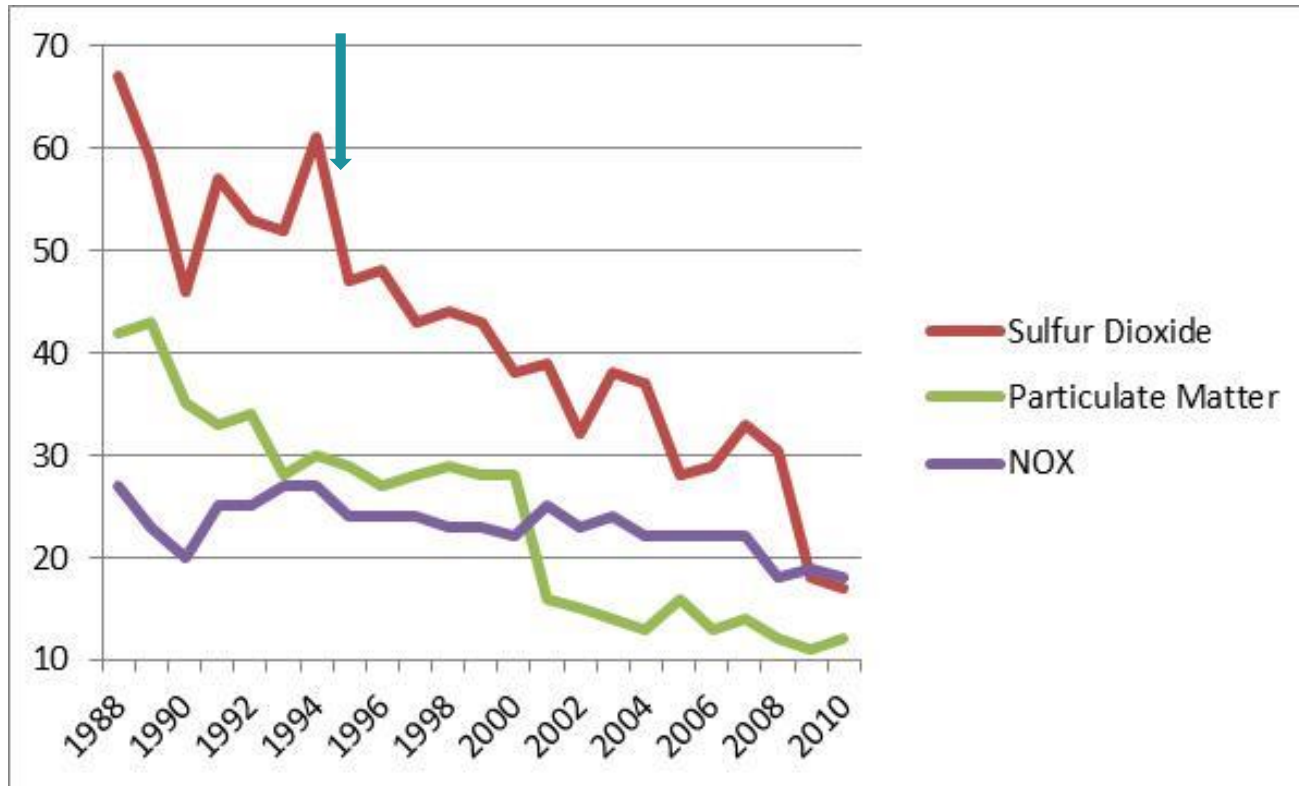
51% Decrease
in Ozone



31% Decrease in
Carbon Monoxide

Continuous monitoring
at 80 monitoring sites
with more than 200
instruments

Reformulated Gas in 1995



25%
Decrease

29%
Decrease

67%
Decrease

With the removal of lead from gasoline, there is almost no lead in either the air or water

PRESENTATIONS AND PROJECTS ENVIRONMENTAL & HEALTH BENEFITS

- Comments on Proposed RFS
- E15 Proposal in Chicago
- State Corn Board Partner Meetings
- U.S. Car (AAE) Annual Meetings
- U.S. Grains Meeting in Amsterdam
- U.S. Grains Meeting in China
- USDA Meeting in Taiwan
- Infrastructure Grants in Illinois/Ohio/Indiana
- Outreach Campaign in Nebraska/Iowa/Indiana
- USDA Grant Opportunity for Infrastructure

WHY WE ARE INVOLVED?

- ❖ To work in area of most harm (mobile sources)
- ❖ To reduce air emissions & promote good lung health
- ❖ Ethanol blended fuel
 - ✓ Renewable – sustainable fuel
 - ✓ Non toxic, water soluble & biodegradable (all media)
 - ✓ Positive environmental benefits
 - ✓ No environmental harm from accidental releases
 - ✓ No environmental harm compared to oil exploration or natural gas drilling

SUMMARY

- The Clean Air Act has been successful in dramatically reducing air pollution in the United States.
- Reduction in pollution from all types of motor vehicles has been critical to meeting air quality goals.
- Regulation of motor vehicle fuels at the national level, combined with local fuel requirements, has brought many areas to within health-based air quality standards.
- Use of oxygenates in fuels, primarily ethanol, has been an important component of fuels programs in the U.S.
- Ethanol will provide a strong role in national fuels programs in the future, including efforts to address GHG emissions.

https://www.youtube.com/watch?v=o_-CIAjTInQ





clean air choice™

† AMERICAN LUNG ASSOCIATION®
OF THE UPPER MIDWEST

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